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VOL. 13 No. 40 October 4, 1963

Cooperative ECONOMIC INSECT REPORT

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PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

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Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Washington 25, D. C.

Volume 13 October 4, 1963 Number 40

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

CORN EARWORM populations causing considerable damage to soybeans in Allendale County, South Carolina; populations low on soybeans in Virginia and Arkansas. (p. 1173). SORGHUM MIDGE adults found in Graham County, Arizona. (p. 1174). MEADOW SPITTLEBUG survey in Ohio indicates probable damage across central area of State in 1964 in contrast to little economic damage in northern and southeastern areas. (p. 1175).

Several severe infestations of a PINK CITRUS RUST MITE (Aculus pelekassi) reported on Florida citrus. (p. 1178).

Adults of POTATO TUBERWORM continue active in Monroe County, Michigan, and controls being applied to eggplant in Harris County, Texas. (p. 1178). Treatments necessary to protect lettuce against TOMATO FRUITWORM and CABBAGE LOOPER in Dona Ana County, New Mexico, and latter pest numerous on lettuce in Yuma and Maricopa Counties, Arizona, but parasites preventing rapid population increases. (p. 1179).

BOLLWORM continues a pest of cotton in California, Arizona, New Mexico and Texas. PINK BOLLWORM heavy locally in Victoria County, Texas, and larvae found on lint cleaners at Safford gin in Graham County, Arizona. (p. 1181).

PINE NEEDLE SCALE causing severe damage to spruce in many localities in eastern Colorado (p. 1183), and BLACK PINE LEAF SCALE seriously damaging ponderosa pine in Spokane County, Washington (p. 1189). ELM LEAF BEETLE severely damaged elms in southern Union County, Ohio, and at Inchelium, Ferry County, Washington. (pp. 1183, 1189). TWIG PRUNERS girdled branches of elm and hickory in Douglas County, Kansas, and pruned numerous twigs from elms, hickory, persimmon and some other trees in southwest Missouri. (pp. 1184, 1189).

CORRECTIONS and ADDITIONAL NOTES

See page 1189.

DETECTION

In Delaware, a NOCTUID MOTH (Bomolocha abalienalis), a CHRYSAUGID MOTH (Galasa rubidana) and a GRASS MOTH (Crambus elegans) all recorded for the first time. (p. 1188). New county records of significance were WHITE-FRINGED BEETLES in Thomas County, Georgia (p. 1188) and ELM LEAF BEETLE in Doniphan County, Kansas (p. 1189).

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 1185).

Estimated Losses and Production Costs Attributed to Insects and Related Arthropods Attacking Crops in Kansas and Georgia During 1962.
- Army cutworm on wheat in Kansas. (p. 1192).
- Corn earworm on corn for grain in Kansas. (p. 1193).
- Southern corn rootworm on peanuts in Georgia. (p. 1194).

Estimated Damage and Crop Loss Caused by Insect/Mite Pests in California - 1962. (pp. 1195-1202).

WEATHER BUREAU 30-DAY OUTLOOK

OCTOBER 1963

The Weather Bureau's 30-day outlook for October calls for temperatures to average below seasonal normals in states bordering the Atlantic, the Gulf of Mexico, and the Appalachians. Above normal averages are predicted for the remainder of the nation except for near normal in the eastern Lakes and Ohio Valley. Precipitation is expected to exceed normal over New England, the South Atlantic States, and the Pacific Northwest. Near normal amounts are indicated for the Middle Atlantic, West Gulf, and Southwest border states. In the remainder of the country subnormal rainfall is in prospect.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through the Superintendent of Documents, Washington, D.C. 20250. Price $4.80 a year, $2.40 a half year.

WEATHER OF THE WEEK ENDING SEPTEMBER 30

Maritime polar air pushed into the Pacific Northwest at the beginning of the week. It brought light rain to Washington, and, as it moved eastward, to Idaho, Montana, and the northern Great Plains. By Tuesday the front stretched from the Red River Valley of the North to the Oklahoma Panhandle. Light rains, generally less than an inch, fell over the northern and central Great Plains. A stationary front, draped across Florida, dumped drenching rains throughout most of the week over the entire Peninsula.

A huge mound of high pressure dominated the weather over the eastern half of the Nation. Afternoon temperatures ranged generally from the 50's and 60's over the North Central and Northeast to the upper 70's and lower 80's along the Gulf and lower Atlantic coasts. Subfreezing temperatures occurred on several mornings over most of New England and New York, and the higher elevations of Pennsylvania, Virginia, and West Virginia, and some of the mountain areas of North Carolina. Thursday morning this high pressure area united with one which lay over the Great Basin. The front which had separated them was pushed aloft and high pressure and fair weather prevailed from the Great Basin to the Atlantic Ocean.

While the middle and eastern portions of the country were enjoying comfortable temperatures characteristic of the early fall season, easterly winds over the Far Southwest overcame the usual sea breezes and carried the 100° heat from the deserts to the coast of southern California. This upset the familiar diurnal temperature regime. The Los Angeles Weather Bureau Office registered 107° on Wednesday and on Thursday the mercury at Los Angeles Airport rose to 110°. A record-breaking 111° occurred at San Diego, and El Toro, the hottest place in southern California, registered 113°. Afternoon temperatures at Los Angeles exceeded 100° on every afternoon for 5 days beginning Wednesday.

Temperatures averaged above normal north and west of a line from El Paso, Texas, to Chicago, Illinois, and below normal south and east of that line. The largest negative departures were over northeastern New York and northwestern Vermont. The largest positive departures were in the Los Angeles vicinity where temperatures averaged 16° above normal due to 5 consecutive days with afternoon temperatures above 100°.

Light rains fell over much of Washington and nearby areas in Idaho and Montana. Very little rain fell elsewhere west of 100° longitude. Generous rains, generally exceeding 1 inch, fell over the area south and east of a line from Mobile, Alabama, to Albany, New York, and extending on into New England. Some localities received several inches. Precipitation in some spots in Florida exceeded 8 inches. Some snow fell in extreme northern portion of New England on Monday, September 23. (Summary supplied by U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

CORN EARWORM (Heliothis zea) - VIRGINIA - Practically no active infestations in soybean fields checked in King George, Westmoreland, Richmond, Northumberland, Lancaster, Essex, Middlesex, Gloucester, King and Queen, New Kent and Charles City Counties. Most fields (up to 75 percent in some counties) treated during weeks of September 9 and 16. Controls excellent and very little damage noted. In only few fields was damage over 25 percent (based on pods damaged). (Tarpley). SOUTH CAROLINA - Drought has seriously damaged soybeans in Allendale County; however, populations of this species heavier than usual during August and currently inflicting considerable damage to crop by feeding on leaves and pods. (Nettles et al., Sept. 24). ALABAMA - Numerous on late corn and sorghum in Lee, Chambers and Tallapoosa Counties. (Barwood). MICHIGAN - Adult catches at black-light traps continue to increase; very few larvae found in field corn in Ingham County September 21. (Newman). NEBRASKA - Late field corn 80 percent infested in Lincoln County. (Pruess). ARKANSAS - Averaged 14-25 per 100 sweeps in alfalfa in Phillips County. Infestations in soybeans down to low level; no economic infestations found or reported in past 2-3 weeks. (Ark. Ins. Sur.). OKLAHOMA - Ranged 1-4 per 10 sweeps on alfalfa in Pauls Valley area. Moderate, 6 per 10 sweeps, in Altus area, southwest. Heavy in late sorghum in Garfield County, northwest. (Okla. Coop. Sur.). UTAH - Damage moderate this season in Iron County sweet and and field corn. (Knowlton, Sjoblom). Only up to 10 percent of sweet corn ears "wormy" in general area of Spanish Fork, Utah County, before present canning season ended. This was about one-half of count at end of 1962 season in that area. (Dorst, Knowlton). ARIZONA - Infestations found in corn in Graham, Yuma and Maricopa Counties; 50 percent of ears infested in Graham County. (Ariz. Coop. Sur.). NEVADA - Medium to heavy larval populations, with medium damage to ears of sweet corn, in Diamond Valley, Eureka County. (Earnist).

FALL ARMYWORM (Laphygma frugiperda) - ARIZONA - Infesting sorghum fields in Yuma County. Light in some alfalfa fields in Maricopa and Pinal Counties; averaged 20 per 100 sweeps. (Ariz. Coop. Sur.). TEXAS - Heavy populations causing considerable damage to pastures and small grains in Brazos, Burleson, Hill, Comanche, Montgomery and Ochiltree Counties. (Tex. Coop. Rpt.). OKLAHOMA - Moderate infestations present in grain sorghum in Garfield County. Lighter counts noted in alfalfa in Jackson County. Infestations in wheat and rye in Okarche, El Reno and Yukon areas (central) averaged fewer than 1 per foot of row. (Okla. Coop. Sur.). NEBRASKA - Late field corn 15 percent infested in Lincoln County. Fall-seeded grains should be watched. (Pruess). NORTH CAROLINA - Destroyed most of 30-acre mixture of fescue, ladino clover, orchardgrass and bluegrass in Chatham County. Larvae feeding on field of newly seeded fescue in Randolph County. (Tart, Snider, Mount).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - ILLINOIS - Total of 50 fields of corn examined in Randolph, Union, Alexander, Pulaski, Pope, Massac and Johnson Counties, southern area; 3 stalks found girdled in field at Olmsted, Pulaski County, approximately 10 miles north and slightly east of first find (Alexander County) this past spring. One larva and a pupa, believed to be this species, found at location. (Ill. Ins. Rpt.).

EUROPEAN CORN BORER (Ostrinia nubilalis) - NEBRASKA - Light infestations present in Jefferson and Thayer Counties; fourth and fifth-stage larvae present. Fall survey underway. (Bergman). MINNESOTA - Second-generation larvae a problem in ears of market sweet corn in Minneapolis-St. Paul area. (Minn. Ins. Rpt., Sept. 20). MICHIGAN - Adult flight as determined by blacklight trap catches continues downward. (Newman, Laser, Wells). DELAWARE - Adult collections in blacklight trap in Sussex County considerably reduced; averaged 6 per night September 18-24. (Burbutis).

SUGARCANE BORER (Diatraea saccharalis) - TEXAS - Occurring on late grain sorghum in Brazos and Burleson Counties; about 5-10 percent of stalks infested. (Randolph).

ARMYWORM (Pseudaletia unipuncta) - TEXAS - Causing light local damage to pearl millet in Cochran County. (Tex. Coop. Rpt.; Hanson).

RICE DELPHACID (Sogata orizicola) - FLORIDA - This species and Sogata sp. found lightly infesting rice at Belle Glade, Palm Beach County, on September 13. (Faircloth).

CORN LEAF APHID (Rhopalosiphum maidis) - NEBRASKA - Considerable numbers still present in corn fields in Jefferson, Thayer and Nuckolls Counties. Some corn plants have purple color which could be caused by feeding injury. (Bergman). UTAH - Very numerous on corn locally near Ogden, Weber County. (Knowlton).

CHINCH BUG (Blissus leucopterus) - TEXAS - Found in head as well as about roots of grain sorghum in Brazos and Burleson Counties; 60-75 percent of plants infested. (Randolph).

SORGHUM MIDGE (Contarinia sorghicola) - TEXAS - Local infestations appearing in late grain sorghum in Brazos and Burleson Counties. (Randolph). ARIZONA - Adults found in two sweet sorghum fields near Lonestar, Graham County; averaged 65 per 100 sweeps. (Ariz. Coop. Sur.).

WESTERN CORN ROOTWORM (Diabrotica virgifera) - NEBRASKA - Adults still present in Lancaster County field; however, populations decreased considerably from previous week. (Bergman).

FLEA BEETLES - WISCONSIN - Survey to determine presence of corn flea beetle (Chaetocnema pulicaria) conducted July 16 in Iowa County. Collections made from corn leaves, but actual feeding damage not observed. Determinations by G. B. Vogt revealed following species: Phyllotreta cruciferae; Phyllotreta sp., probably striolata; Phyllotreta sp., probably bipustulata; Psylliodes sp.; and Chaetocnema sp., probably pulicaria. (Wis. Ins. Sur.).

A CRICKET (Nemobius fasciatus) - NEBRASKA - Approximately 1 per square yard in a Jefferson County cornfield. (Bergman).

WHEAT CURL MITE (Aceria tulipae) - COLORADO - Found on volunteer wheat in area near Amherst, Phillips County. (Jenkins).

PEA APHID (Acyrthosiphon pisum) - MARYLAND - Counts of 50-175 per sweep common on alfalfa in Carroll and Frederick Counties. (U. Md., Ent. Dept.). VIRGINIA - Ranged 1-200 per 10 sweeps on alfalfa in vicinity of Steeles Tavern, Augusta County. (Woodside). OHIO - Moderate to heavy populations present in many west central and southwest counties; heaviest counts 1,800 per 50 sweeps on alfalfa in Greene County. (Lyon). MINNESOTA - Averaged 2,500 per 100 sweeps in central area; predators generally low in area. (Minn. Ins. Rpt.). NORTH DAKOTA - Counts 5-20 per sweep on alfalfa in eastern one-fourth of State. (N. D. Ins. Sur.). WYOMING - Counts 1,800-2,000 per 100 sweeps on alfalfa in Sheridan, Johnson and Natrona Counties. (Marks). OKLAHOMA - Counts 20-200 per 10 sweeps on alfalfa in Garfield and Grant Counties, northwest area. (Okla. Coop. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - SOUTH DAKOTA - Counts per 100 sweeps along James and Missouri Rivers averaged 75 in Bon Homme County, 62 in Davison County, 57 in Sanborn County, 8 in Beadle County and 23 in Spink County. None found in Yankton County. (Hintz). MISSOURI - Counts in alfalfa in southwest ranged 0-400 per 10 sweeps. (Munson, Thomas, Wood). ARKANSAS - None found in alfalfa in Lee and Phillips Counties, east central. (Ark. Ins. Sur.). OKLAHOMA - Light to moderate, 50-750 per 10 sweeps, present in Pauls Valley area with some honeydew secretions observed on foliage in localized spots; 10-100 per 10 sweeps noted in Grant and Garfield County area. (Okla. Coop. Sur.). COLORADO - Populations decreased to low numbers in most areas, but some fields in Prowers County still produce 50-2,000 per 100 sweeps. (Schweissing).

MEADOW SPITTLEBUG (Philaenus spumarius) - MARYLAND - Adults ranged 1-2 per sweep on alfalfa in Carroll and Frederick Counties. (U. Md., Ent. Dept.). OHIO - Populations higher than in 1962 based on survey. Damage across central area probable next spring in contrast to little economic damage in northern and southeastern areas. (Treece).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - FLORIDA - Lightly infesting soybeans at Barraneau Park, Escambia County. (Peacock, Sept. 12). ARIZONA - Large adult populations exist in blooming alfalfa in Graham County; averaged 1,000 per 100 sweeps. (Ariz. Coop. Sur.).

ALFALFA PLANT BUG (Adelphocoris lineolatus) - OHIO - Averaged 12 per 50 sweeps in alfalfa in Marion County, central area. (Lyon). NORTH DAKOTA - Trace numbers on alfalfa in southeast. (N. D. Ins. Sur.). WYOMING - Adults averaged 18 per 100 sweeps in Sheridan, Johnson and Natrona County alfalfa. (Marks).

TARNISHED PLANT BUG (Lygus lineolaris) - MARYLAND - Adults common in alfalfa in Carroll and Frederick Counties. (U. Md., Ent. Dept.). NORTH DAKOTA - Trace numbers on alfalfa in southeast. (N. D. Ins. Sur.).

PLANT BUGS - MINNESOTA - Lygus spp. and Adelphocoris spp. averaged 500 per 100 sweeps in alfalfa in central district. (Minn. Ins. Rpt.). WYOMING - Adults of Lygus spp. averaged 26 per 100 sweeps in Sheridan, Johnson and Natrona County alfalfa. (Marks).

POTATO LEAFHOPPER (Empoasca fabae) - MINNESOTA - Averaged 600 per 100 sweeps on alfalfa in central district. (Minn. Ins. Rpt.).

GARDEN FLEAHOPPER (Halticus bracteatus) - SOUTH CAROLINA - Extremely numerous and causing defoliation of kudzu in Clemson area on September 7. This is heaviest damage and largest population of pest observer ever noted in State. (Nettles).

ALFALFA WEEVIL (Hypera postica) - MARYLAND - Adults ranged 0-4 per 10 sweeps and larvae 0-7 per sweep on alfalfa checked in Carroll and Frederick Counties. Some pupation noted. (U. Md., Ent. Dept.). VIRGINIA - Larvae ranged 0-6.6 per square-foot-pan sample in Montgomery County alfalfafield. (Pienkowski, Sept. 17). No larvae or adults found in 6 fields sampled in Appomattox and Campbell Counties (3 fields each county). Larvae ranged 1-18 per 100 sweeps (averaged 6) in alfalfa in vicinity of Steeles Tavern, Augusta County. (Woodside). No larvae or adults encountered in fields checked in Bedford, Campbell, Appomattox and King George Counties. (Tarpley). ARKANSAS - None found in Lee and Phillips Counties, east central area. (Ark. Ins. Sur.).

BLISTER BEETLES (Epicauta spp.) - OKLAHOMA - E. pennsylvanica and Epicauta sp. ranged 0-8 per 10 sweeps on alfalfa in Pauls Valley area, south central. (Okla. Coop. Sur.).

BANDED CUCUMBER BEETLE (Diabrotica balteata) - FLORIDA - Lightly infesting soybeans at Barraneau Park, Escambia County. (Peacock, Sept. 12).

BEAN LEAF BEETLE (Cerotoma trifurcata) - FLORIDA - Lightly infesting soybeans at Barraneau Park, Escambia County. (Peacock, Sept. 12). MISSOURI - Moderate to heavy populations observed on late soybeans in southwest area; ranged 3-13 per foot of row. (Munson, Thomas, Wood).

A WHITE-FRINGED BEETLE (Graphognathus sp.) - GEORGIA - Moderate infestation on foliage of peanuts in Decatur County. (Stephens).

ALFALFA CATERPILLAR (Colias eurytheme) - MINNESOTA - Counts in alfalfa declined in nearly all fields; averaged 50 per 100 sweeps in central district. (Minn. Ins. Rpt.). WYOMING - Larvae averaged 16 per 100 sweeps in alfalfa in Sheridan and Johnson Counties. (Marks). NEBRASKA - Adults very active in alfalfa in Jefferson, Nuckolls and Thayer Counties. (Bergman). UTAH - Moderately numerous

in some alfalfa fields in Davis County. (Knowlton). ARIZONA - Decreases found in alfalfa in Yuma, Graham, Maricopa and Pinal Counties; 125-150 per 100 sweeps. (Ariz. Coop. Sur.). NEW MEXICO - Moderate to heavy infestations in alfalfa in Artesia area, Eddy County; growers treating where infestations heavy. (N. M. Coop Rpt.).

GREEN CLOVERWORM (Plathypena scabra) - MISSOURI - Light infestations observed on late soybeans in southwest; ranged 0-5 larvae per foot of row. Numerous adults observed in fields and vegetation around soybean fields. (Munson, Thomas, Wood). OKLAHOMA - Counts 3-8 per 10 sweeps and up to 25 per 10 sweeps in individual fields in Pauls Valley area, south central. (Okla. Coop. Sur.).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - OKLAHOMA - Attacking peanuts in Atoka, Pontotoc, Bryan, Marshall, Carter, Hughes and Johnston Counties. (Okla. Coop. Sur.).

PALE WESTERN CUTWORM (Agrotis orthogonia) - COLORADO - Increasing in southeastern area; averaged 8 per night in light trap at Rocky Ford. (Schweissing).

SALT-MARSH CATERPILLAR (Estigmene acrea) - ARIZONA - Small infestations found in nearly all alfalfa in Graham, Maricopa and Pinal Counties; averaged 25 larvae per 100 sweeps. (Ariz. Coop. Sur.).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - ARIZONA - Larvae found in alfalfa in Pinal and Maricopa Counties; averaged 25 per 100 sweeps. (Ariz. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - OKLAHOMA - Light counts, fewer than 2 per 10 sweeps, present in alfalfa in Jackson County, southwest, and 1-4 per 10 sweeps in Pauls Valley area. (Okla. Coop. Sur.).

GARDEN WEBWORM (Loxostege similalis) - OKLAHOMA - Heavy, 100-200 per 10 sweeps, noted on alfalfa in Grant and Garfield Counties, northwest. Only light infestations observed in south central area. (Okla. Coop. Sur.). ARIZONA - Larvae caused considerable damage to alfalfa in Pinal County; averaged 80 per 100 sweeps. (Ariz. Coop. Sur.).

GRASSHOPPERS - ALABAMA - Grasshopper nymphs and crickets causing extensive damage to volunteer stands of crimson and white clovers in 2 and 3-leaf stage in Lee, Chambers, Tallapoosa and Macon Counties. (Barwood). UTAH - Populations decreased markedly in several Davis and Salt Lake County localities recently. (Knowlton). Varied from moderate to damaging in Iron County farms and rangelands. (Knowlton, Sjoblom). NORTH DAKOTA - Some grasshoppers remain active in alfalfa and on roadsides in southeast; ranged 1-5 per square yard on roadsides and from a trace to 3 per square yard in alfalfa; Melanoplus sanguinipes and M. bivittatus dominant species. (N. D. Ins. Sur.).

RED-LEGGED GRASSHOPPER (Melanoplus femurrubrum) - OHIO - Most abundant species in southwest; "hoppers" quite abundant in alfalfa and red clover fields. (Lyon). WISCONSIN - Continues to feed actively, but alfalfa growth good and injury masked. Oviposition still in progress. (Wis. Ins. Sur.). NEBRASKA - Approximately 8 per square yard in field margins in Jefferson County. (Bergman).

JAPANESE BEETLE (Popillia japonica) - NORTH CAROLINA - Larvae over 20 per square foot in pasture locally in Haywood County. (Davis, Mount).

A SOD WEBWORM (Crambus bonifatellus) - CALIFORNIA - Heavy populations in lawns in Santa Paula, Ventura County. (Cal. Coop. Rpt.).

A LAWN CHINCH BUG (Blissus leucopterus prob. insularis) - TEXAS - Damage to lawns in eastern and southeastern areas continuing. (Thomas).

THRIPS (Chirothrips spp.) - ARIZONA - Causing some damage to Bermuda grass in Yuma County; many fields being treated. (Ariz. Coop. Sur.).

FRUIT INSECTS

AMERICAN PLUM BORER (Euzophera semifuneralis) - OHIO - Collected at Shaker Heights, Cuyahoga County. (Holdsworth). TEXAS - Causing light, local damage to plum trees in Bastrop County. (Clemons). CALIFORNIA - Causing considerable damage; heavy on recently budded plum buds in Placerville, El Dorado County, and light on peach fruit in Penryn, Placer County. (Cal. Coop. Rpt.).

LESSER PEACH TREE BORER (Synanthedon pictipes) - OHIO - Moderate to heavy in peach orchard at Wooster, Wayne County; 10-20 "strikes" per tree noted in several instances; few larvae collected. (Forsythe).

PEACH TWIG BORER (Anarsia lineatella) - ALABAMA - Attacking plum and peaches in Montgomery County. (McCabe).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - OHIO - Caused moderate tip injury on young peach trees near Springfield, Clark County. (Lyon).

RED-HUMPED CATERPILLAR (Schizura concinna) - CALIFORNIA - Medium on apple trees in Arnold, Calaveras County, and at Mariposa, Mariposa County. (Cal. Coop. Rpt.).

APPLE MAGGOT (Rhagoletis pomonella) - SOUTH CAROLINA - Infested fruit of first crop of Golden Delicious apples from young trees at Long Creek, Oconee County. (Nettles et al., Sept. 10). OHIO - Moderate to severe damage noted on apples in home orchard in Union County; 2 adults noted on fruits. (Lyon). MICHIGAN - Total of 17 adults collected in 15 minutes with aspirator September 26 in East Lansing from crab apples; 9 females and 8 males. Females still contain eggs. "Stings" very numerous on fruit which continues to ripen and fall. (Dowdy).

EUROPEAN RED MITE (Panonychus ulmi) - OHIO - Eggs abundant on fruit and twigs of Cortland apples in orchard at Wooster, Wayne County; 250-300 eggs at each calyx. (Lyon, Forsythe).

WALNUT HUSK FLY (Rhagoletis completa) - CALIFORNIA - Heavy in walnut husks in Paicines, San Benito County. (Cal. Coop. Rpt.). Local infestations in yard trees becoming more noticeable this season in Sacramento, Sacramento County, and West Sacramento, Yolo County; caused many inquiries from homeowners. (Cal. Coop. Rpt.).

WALNUT CATERPILLAR (Datana integerrima) - ALABAMA - Several groups pupated from pecans in Lee County; this represents last generation of 1963. (McQueen).

PECAN LEAF CASEBEARER (Acrobasis juglandis) - ALABAMA - Light to medium on pecans from Mobile County northward as far as surveyed in central area. Currently in small, crooked, frass-covered tunnels on underside of leaf instead of its normal cases of early and later generations. (Eden et al.).

HICKORY SHUCKWORM (Laspeyresia caryana) - ALABAMA - Now in full pupation throughout most of State; extent of damage to pecans remaining on trees can now be seen. Population and damage appears to depend on time of infestation and location of larvae feeding in shucks. (Barwood et al.).

A FALSE POWER-POST BEETLE (Xylobiops basilaris) - ALABAMA - Specimens noted on injured and dying limbs of pecans in Lee, Tallapoosa, Elmore, Hale, Montgomery and Autauga Counties. (McQueen).

BLACK PECAN APHID (Melanocallis caryaefoliae) - CALIFORNIA - Heavy on yard trees locally in Sacramento, Sacramento County. (Cal. Coop. Rpt.).

A PYRRHOCORID BUG (Largus cinctus californicus) - CALIFORNIA - Medium in walnut planting in Templeton, San Luis Obispo County; adults and nymphs present. (Cal. Coop. Rpt.).

A PINK CITRUS RUST MITE (Aculus pelekassi) - FLORIDA - Light on Robinson tangerine at Mascotte, Lake County, (Henderson, Brown, Sept. 5); on Rubidoux trifoliate orange at Orlando, Orange County, (Burditt, Sept. 19); on trifoliate orange at Electra-Moss Bluff area, Marion County, (Graham, Sept. 18); on Cochran navel orange at Orlando (Burditt, Sept. 19). Moderate on satsuma leaves at Paisley, Lake County. (Bentley, Aug. 29). Severe on Citrus sp. leaves at Orlando. (Burditt, Sept. 19). Infested leaves of Citrus spp. at Mascotte (Henderson, Sept. 17); light on leaves of Citrus sp. at La Belle, Hendry County (Smith, Sept. 6); severe on leaves of sweet orange at Wachula, Hardee County (Lamb, Aug. 28) and moderate on leaves at Mount Dora, Lake County (Bentley, Sept. 13). On leaves of sweet orange at Electra and Lynne, Marion County. (Graham, Sept. 11-18).

ORANGE-DOG (Papillio cresphontes) - ARIZONA - Large numbers of larvae present in orange groves in Yuma County; few reported in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

A LEAF-FOOTED BUG (Leptoglossus zonatus) - ARIZONA - Infested citrus trees and ornamentals in Phoenix area, Maricopa County. (Ariz. Coop. Sur.).

WESTERN SUBTERRANEAN TERMITE (Reticulitermes hesperus) - CALIFORNIA - Heavy on citrus trees in Ducas, Tulare County; condition of trees not indicated. (Cal. Coop. Rpt.).

CITRUS RED MITE (Panonychus citri) - CALIFORNIA - Occurring on fig trees in Pico-Rivera, Los Angeles County. (Cal. Coop. Rpt.).

YELLOW-NECKED CATERPILLAR (Datana ministra) - OHIO - Larvae infested blueberry plants near Lisbon, Columbiana County. (Myers, Holdsworth, Sept. 24).

A SPIDER MITE (Tetranychus mcdanieli) - WISCONSIN - Nearly defoliated alpine currants earlier at Madison; det. by R. L. Smiley. (Wis. Ins. Sur.).

LEAFHOPPERS (Erythroneura spp.) - NEVADA - Heavy on grape leaves in Las Vegas, Clark County. (Zoller).

GRAPE BERRY MOTH (Paralobesia viteana) - MARYLAND - Heavy feeding noted on Concord grapes at Fallston, Harford County. (U. Md., Ent. Dept.).

A CUBAN MAY BEETLE (Phyllophaga bruneri) - FLORIDA - Severe on lychee at Miami, Dade County. (Murphy).

TRUCK CROP INSECTS

POTATO TUBERWORM (Gnorimoschema operculella) - MICHIGAN - Adults totaled over 125 in blacklight trap near Samaria, Monroe County, week ending September 23; trapping to continue to determine length adults remain active in fields. Special cultural control practices and spraying recommended to protect 1964 crop. (Newman, Wells, Guyer, Laser, Holdsworth). TEXAS - Larvae feeding as leaf miners on eggplants in Harris County; 75 percent of leaves infested and average of 3 adults per plant noted. Some feeding inside of fruit also occurring; controls underway. (Davis, Larsen). UTAH - Infestation at Beryl, Iron County, appears very light. (Knowlton, Sjoblom).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - VIRGINIA - Severe in snap beans locally, James City County. (Tarpley, Bryant, Sept. 14). GEORGIA - Heavy on southern peas in Miller County. (Powell, Sept. 19).

EUROPEAN CORN BORER (Ostrinia nubilalis) - VIRGINIA - Severely damaged pods of blackeye peas locally, James City County. (Tarpley, Bryant, Sept. 15). DELAWARE - High larval infestations noted since September 14 in peppers in several inadequately treated small fields. (Burbutis). MICHIGAN - Commerical pepper growers in Monroe County obtained effective control; untreated peppers in Ingham County research plots with 25 percent fruit infestation. (Newman, Laser, Wells).

TOMATO FRUITWORM (Heliothis zea) - GEORGIA - Moderate on pods of okra in Macon County. (Mathis). NEW MEXICO - Eggs abundant on young plants in Dona Ana County lettuce fields; treatment necessary every 4 days to protect plants. (N. M. Coop. Rpt.). COLORADO - Egg counts ranged 1-9 per 100 leaves; not economically important. Light trap catches average 73 per night at Rocky Ford. (Schweissing).

BEET ARMYWORM (Laphygma exigua) - ARIZONA - Larvae damaged lettuce in Yuma and Maricopa Counties; averaged 45 per 100 sweeps. (Ariz. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Numerous in lettuce in Yuma and Maricopa Counties; parasites preventing rapid population increases. (Ariz. Coop. Sur.). NEW MEXICO - Eggs abundant on young lettuce in fields in Dona Ana County; controls necessary. (N. M. Coop. Rpt.). GEORGIA - Moderate to heavy on foliage of sweetpotatoes in Worth County. (Middleton). MARYLAND - Light on broccoli and cabbage at Fairland, Montgomery County. (U. Md., Ent. Dept.).

VELVETBEAN CATERPILLER (Anticarsia gemmatalis) - GEORGIA - Moderate to heavy on foliage of sweetpotatoes in Lanier County. (Zeigler, Moore).

SWEETPOTATO LEAF ROLLER (Pilocrocis tripunctata) - ALABAMA - Damaged sweetpotatoes in several patches near Theodore, Mobile County; 70 percent of leaf surface destroyed in some instances. (Seibels).

SWEETPOTATO HORNWORM (Agrius cingulatus) - GEORGIA - Moderate to heavy on foliage of sweetpotatoes in Worth County. (Middleton).

ONION MAGGOT (Hylemya antiqua) - NEVADA - Light, larval infestations in sections of onion fields now being harvested in Smith Valley, Lyon County. (Hilbig).

A LEAF MINER FLY (Liriomyza sp.) - FLORIDA - Infested 100 percent of 100 celery plants. (Desin, Sept. 20).

SPINACH LEAF MINER (Pegomya hyoscyami) - WYOMING - Second-generation larvae appearing in sugar beet fields of Sheridan and Johnson Counties; harvest started September 25. (Marks).

BEET LEAFHOPPER (Circulifer tenellus) - UTAH - Curly top damage to tomatoes and numbers of this species light in Iron County. (Knowlton, Sjoblom). CALIFORNIA - Final aerial mapping of Russian-thistle acreages in western San Joaquin Valley completed September 20. Total of 285,000 acres scheduled for treatment. Russian-thistle elimination crews covered 77,176 acres of rangeland and 5,560 miles of roadside this season. (Cal. Coop. Rpt.).

GREEN PEACH APHID (Myzus persicae) - DELAWARE - Continues heavy on some peppers in Sussex County. (Burbutis). MICHIGAN - Remains active on potatoes and peppers in research plots in East Lansing area, Ingham County. (Wells).

CABBAGE APHID (Brevicoryne brassicae) - MICHIGAN - Colonies still active on cabbage and cauliflower in Ingham County research plots. (Wells).

MARGINED BLISTER BEETLE (Epicauta pestifera) - GEORGIA - Light to moderate feeding damage noted on southern peas in Atlanta area. (Woodliff, Sept. 20).

TOBACCO WIREWORM (Conoderus vespertinus) - NORTH CAROLINA - Injury to sweetpotatoes now being harvested very light in Benson-Newton Grove area. (Mount).

TOBACCO INSECTS

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - MARYLAND - Moderate to heavy feeding occurring on late tobacco in Anne Arundel and Calvert Counties. (U. Md., Ent. Dept.). OHIO - Moderate on tobacco fields near Portsmouth, Scioto County. Det. by G. B. Vogt. (Lyon, Sept. 25).

GREEN PEACH APHID (Myzus persicae) - MARYLAND - Light to moderate on late tobacco in Anne Arundel and Calvert Counties. (U. Md., Ent. Dept.).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - ALABAMA - Numerous adults emerging from top bolls as they open. Extensive feeding noted on squares and blooms where present, especially on lowland areas of fields and river bottom farms. Second growth now occurring in some fields and food plentiful. (Alsobrook, Barwood, et al.). ARKANSAS - Scattered infestations present. (Ark. Ins. Sur.). TEXAS - Heavy, local populations causing damage in Garza and Anderson Counties. (LaRue, Aguire).

BOLLWORM (Heliothis zea) - CALIFORNIA - Infestations generally light in Shafter area although a few fields show considerable infestation; larvae ranged 2-3 to as high as 8-9 per 100 terminals. Larvae may continue to be a problem throughout San Joaquin Valley for next 2-3 weeks. (Leigh, Sept. 24). ARIZONA - Decreased populations found in Graham, Pinal, Maricopa and Yuma Counties; however, enough larvae remain to cause serious damage to bolls of top crop in cotton fields in above counties. (Ariz. Coop. Sur.). NEW MEXICO - Continues a problem in Dona Ana County cotton fields. (N. M. Coop. Rpt.). TEXAS - Light to moderate local damage reported from Hockley and Garza Counties. (Tex. Coop. Rpt.).

BOLLWORMS (Heliothis spp., et al.) - ALABAMA - Egg laying and feeding on squares and bolls occurring in lowland areas. (Barwood et al.). ARKANSAS - Scattered infestations present. (Ark. Ins. Sur.). OKLAHOMA - Of collections made September 20 from experimental plots in Chickasha area, 30 percent were H. virescens. Damage continues in irrigated cotton in southwest. Populations apparently on decline in Chickasha area as smaller numbers of first to third-stage larvae present than on previous checks. (Okla. Coop. Sur.).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Larvae found on lint cleaners on 21 bales of cotton ginned at Safford gin in Graham County. (Ariz. Coop. Sur.). TEXAS - Heavy, local infestations appearing in Victoria County. (Tex. Coop. Rpt.; Bales). OKLAHOMA - Number of larvae found in gin trash inspections 7 per 100 bushels of trash in Bryan County, 2 per 35 bushels of trash in Coal County, 2 per 20 bushels of trash in Comanche County, 4 per 25 bushels of trash in Love County and 5 per 100 bushels of trash in Marshall County. Lint cleaner inspections in Custer, Jackson, Kiowa, McIntosh and Washita Counties negative; inspections positive in Caddo, Coal and Muskogee Counties. (Okla. Coop. Sur., PPC).

COTTON LEAFWORM (Alabama argillacea) - ALABAMA - Noted on cotton in Chambers, Lee, Tallapoosa and Macon Counties; first report of season. Appearance too late to be of economic significance. (Barwood). ARKANSAS - Scattered infestations present. (Ark. Ins. Sur.). OKLAHOMA - Heavy infestations caused extensive defoliation of cotton in eastern part of State. Most cotton matured and production not hurt. (Okla. Coop. Sur.). NEW MEXICO - Moth flight extremely heavy nights of September 24-26 in southern Dona Ana County as far north as Radium Springs. Heavy larval infestation expected during coming week. (N. M. Coop. Rpt.). ARIZONA - Populations still exist near Solomon in Graham County; 300-500 per 100 cotton plants. (Ariz. Coop. Sur.).

BEET ARMYWORM (Spodoptera exigua) - CALIFORNIA - Some fields in Shafter area showing moderate infestations, with larvae feeding in bolls. Controls may be necessary if considerable boll damage is occurring. (Leigh, Sept. 24).

CABBAGE LOOPER (Trichoplusia ni) - CALIFORNIA - Infestations ranged from very light to heavy throughout San Joaquin Valley and severe defoliation evident in some fields where controls not undertaken. (Leigh, Sept. 24). ARIZONA - Continues present in large numbers in Graham County; few fields treated. (Ariz. Coop. Sur.). ARKANSAS - Scattered infestations present. (Ark. Ins. Sur.).

COTTON LEAF PERFORATOR (Bucculatrix thurberiella) - ARIZONA - Continues to cause considerable damage to many cotton fields in Yuma, Pinal and Maricopa Counties. (Ariz. Coop. Sur.). CALIFORNIA - Heavy populations developing along eastern part of Imperial Valley, Imperial County, requiring treatments to protect late-fruiting cotton. (Cal. Coop. Rpt.).

SALT-MARSH CATERPILLAR (Estigmene acrea) - ARIZONA - Larval increases noted in Graham, Pinal, Maricopa and Yuma Counties; averaged 120-150 per 100 plants in Pinal and Maricopa Counties. (Ariz. Coop. Sur.).

WESTERN YELLOW-STRIPED ARMYWORM (Prodenia praefica) - CALIFORNIA - Light populations present in some fields in Kern County, with some boll damage evident. For the most part, control should not be necessary. (Leigh, Sept. 24).

A LEAF ROLLER (Platynota stultana) - CALIFORNIA - Evident in cotton fields adjacent to rose nurseries; continues to feed on squares and bolls. In most cases, damage light; however, controls may be necessary where extensive boll feeding is occurring. (Leigh, Sept. 24).

LYGUS BUGS (Lygus spp.) - CALIFORNIA - Considerable damage to small bolls evident in some fields in Shafter area; controls recommended to prevent further damage. (Leigh, Sept. 24).

COTTON APHID (Aphis gossypii) - ARIZONA - Increasing and causing moderate damage to top crop in cotton fields in Yuma County. (Ariz. Coop. Sur.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - ALABAMA - Activity continues centered in eastern part of State. During 1963, activity remained at relatively low level. In previous years, epidemic populations occurred during late summer and early fall months. GEORGIA - Beetle activity continues at reduced level on Chattooga and Tallulah Districts of Chattahoochee National Forest. Estimated 1,600 infested trees found by aerial surveys during latter part of July. Georgia Forestry Commission reports beetle now endemic in all counties included in original control project. Approximately 814,000 trees removed and treated since March 1962. Total number of treated spots approximately 18,400. Industry removed additional large number of infested trees not included in above report. MISSISSIPPI - Beetle activity increased slightly on Homochitto National Forest, but remains at relatively low level. Aerial evaluation survey in July showed 1.5 infested trees per 1,000 trees, compared 0.4 for similar survey in April. SOUTH CAROLINA - Endemic populations in Piedmont declined. Cooperative aerial and ground surveys during June and July indicate approximately 26,000 infested trees, compared with 95,000 during June 1962. Suppressive programs on National Forest lands continue on Tyger, Enoree and General Pickens Districts on Sumter National Forest. Activity increased on Francis Marion National Forest, where 17,000 trees currently infested. Although center of outbreak was on Witherbee District and Santee Experimental Forest, recent detection surveys indicate spread to adjacent Santee and Wambaw Districts. Most activity on wet sites, with 2-3 inches of water on ground. Suppressive programs underway over entire forest. (Southeast. For. Pest Rpt., Aug.).

BLACK TURPENTINE BEETLE (Dendroctonus terebrans) - Populations in north and central ALABAMA and GEORGIA generally at low level; however, localized infestations reported. Activity on increase in southern parts of ARKANSAS, Kisatchie National Forest, LOUISIANA, and Homochitto National Forest, MISSISSIPPI. Active salvage and control operations being carried out in the National Forest and by Arkansas State Forestry Commission. D. terebrans frequently associated with D. frontalis (southern pine beetle) as secondary invader on Francis Marion National Forest, SOUTH CAROLINA. In addition, D. terebrans infesting cankered portions of trees infected with fusiform rust (Cronartium fusiforme) on trees injured by logging or lightning. (Southeast. For. Pest Rpt., Aug.).

ENGRAVER BEETLES (Ips spp.) - Activity increased in some areas in south ALABAMA and south GEORGIA because of drought conditions. Ample rainfall during June and July, however, reduced attacks. In LOUISIANA, activity increased in Bienville, East Feliciana, East Baton Rouge and St. Helena Parishes, and the Catahoula Ranger District, Kisatchie National Forest. I. avulsus was primary causal agent. In MISSISSIPPI, Ips spp. activity also increased on Homochitto and Bienville National Forests and in scattered areas over State. In SOUTH CAROLINA, Ips spp. commonly found in trees struck by lightning on Francis Marion National Forest and adjoining private lands in Berkeley and Charleston Counties. On several occasions, I. avulsus brood emerged from lightning strikes and attacked portions of crown and individual branches of adjacent trees. (Southeast. For. Pest Rpt., Aug.).

VARIABLE OAK LEAF CATERPILLAR (Heterocampa manteo) - OKLAHOMA - Considerable activity observed in Lincoln and Pottowatomie Counties, with activity probably present in eastern half of State on oak trees. (Okla. Coop. Sur.).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - OHIO - Moderate infestations observed on white pines near Utica, Licking County. (Lyon, Dean). COLORADO - Causing severe damage to spruce in many localities in eastern area. (Hantsbarger).

WHITE-PINE APHID (Cinara strobi) - OHIO - Collected from white pines at Wooster, Wayne County, April 22, 1963. Det. by L. M. Russell. Additional eggs observed in Licking County. (Lyon).

FOREST TENT CATERPILLAR (Malacosoma disstria) - ALABAMA - Over 310,000 acres of hardwood timber surveyed in Alabama, Tombigbee and Mobile River basin during 1963. Amount of heavy and partial defoliation increased from 5 to 7 percent and from 20 to 49 percent, respectively, over 1962 percentages. LOUISIANA - Results of aerial survey during May 1963 of more than 3 million acres of hardwood in southern part of State show substantial increase in acreage of defoliation. Defoliation was heavy on 793,520 acres in 1963 compared with 168,000 acres in 1962. Partial defoliation occurred on 763,080 acres in 1963 compared with 262,800 acres in 1962. A total of 1,556,600 acres was defoliated in 1963 compared with 431,400 acres in 1962. (Southeast. For. Pest Rpt., Aug.).

ELM SPANWORM (Ennomos subsignarius) - Activity declined abruptly and unexpectedly during 1963 in GEORGIA, TENNESSEE, NORTH CAROLINA and SOUTH CAROLINA, with a total area of only 667,000 acres of infestation. Damage in over half of area, some 432,000 acres, negligible and classed as very light. Major reason for decline believed to be a scelionid wasp (Telenomus alsophilae), an egg parasite, which emerged from E. subsignarius egg masses in large numbers during June 1963. During this year, center of defoliation was in Macon, Swain and eastern half of Graham Counties, North Carolina, and small area in northern portion of Rabun County, Georgia. (Southeast. For. Pest Rpt., Aug.).

CARPENTERWORM (Prionoxystus robiniae) - CALIFORNIA - Larvae heavy in elm trees locally in Marysville, Yuba County. (Cal. Coop. Rpt.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - OHIO - Severe damage observed on elms in southern Union County; trees 65-95 percent skeletonized on one farm. Light adult populations still present. (Lyon).

LOCUST LEAF MINER (Xenochalepus dorsalis) - MARYLAND - Caused conspicuous foliage injury to black locust in southern counties. (U. Md., Ent. Dept.).

TOBACCO BUDWORM (Heliothis virescens) - CALIFORNIA - Medium larval infestation in Tibouchina sp. and begonia in Oroville, Butte County. (Cal. Coop. Rpt.).

A TISCHERIID LEAF MINER (Tischeria omissa) - CALIFORNIA - Heavy populations on hollyhock plants in La Grange, Stanislaus County. (Cal. Coop. Rpt.).

SADDLEBACK CATERPILLAR (Sibine stimulea) - ALABAMA - Rather large numbers noted on muscadine grapevines and hardwood trees in Lee County. (Barwood).

A PYRAUSTID (Asciodes gordialis) - FLORIDA - Found moderately infesting leaves of bougainvillea hedge at Key West, Monroe County. (Buchanan, Sept. 8).

A NOTODONTID (Schizura ipomoeae) - OKLAHOMA - Reported defoliating roses in Oklahoma City area. (Okla. Coop. Sur.).

A NOCTUID (Selenis monotropa) - FLORIDA - Found lightly infesting leaves of chrysanthemum at Punta Gorda, Charlotte County. (Walsh, Davis).

LARGER CANNA LEAF ROLLER (Calpodes ethlius) - ALABAMA - Has been extremely active and destructive to canna lillies throughout State. Many plants damaged; blooming curtailed. Larvae, pupae and adults now present. (McQueen).

AN ACORN WEEVIL (Curculio baculi) - NORTH DAKOTA - Larvae infesting 85 percent of acorns from collection made in Killdeer Mountains for propagation purposes. (Zaylskie).

A WEEVIL (Brachyrhinus sp.) - NEVADA - Severely notching leaves of privet in Reno, Washoe County. (Coop. Rpt.).

A BRUCHID (Stator limbatus) - CALIFORNIA - Heavy populations in mimosa seeds in Modesto, Stanislaus County. (Cal. Coop. Rpt.).

TWIG PRUNERS - MISSOURI - Unidentified species pruned numerous twigs from elms, hickory, persimmon and some other trees in southwest area. (Munson, Thomas, Wood).

COCCIDS - NEW MEXICO - Aspidiotus perniciosus extremely heavy on roses locally in Albuquerque, Bernalillo County. Lecanium sp. has been a problem in several areas of Albuquerque this summer; heavier infestations apparently caused branches to die. Heavy infestations of A. populorum found on poplar trees locally in Alamogordo, Otero County; appears to be spreading rapidly to adjacent trees. Pulvinaria innumerabilis causing slight to considerable damage, depending on degree of infestation, on willow nursery stock locally in northern area. (N. M. Coop. Rpt.). MARYLAND - Chrysomphalus obscurus heavy and injuring several large willow oaks at College Park, Prince Georges County. (U. Md., Ent. Dept.). FLORIDA - Pseudaonidia clavigera light on ivy at Gulfport, Pinellas County. (Bingaman, Sept. 19). Icerya purchasi found locally at Sanford, Seminole County; infesting stem, leaves and bark of hawthorn. Coccus hesperidum found moderately infesting leaves of tea (Thea sinensis) at Gainesville, Alachua County. (Stokes, Sept. 17). CALIFORNIA - Asterolecanium sp., probably minus, heavy on oak trees in Lincoln, Placer County. (Cal. Coop. Rpt.).

WHITEFLIES (Aleuroplatus spp.) - ALABAMA - Becoming quite plentiful on apples, holly, ligustrum and other plantings in Macon, Lee and other central area counties. (Barwood et al.).

APHIDS - OHIO - Undetermined species heavy on weeping willows near Bucyrus, Crawford County. Black sooty fungus quite prevalent on sticky excrement. (Lyon). Heavy infestations of undetermined species observed on white pine trees near Utica, Licking County; 9 of 10 trees appeared weakened. (Dean). Many maple trees throughout central area infested by Periphyllus lyropictus; premature leaf droppage prevalent in many cases; colonies of 5-6 stem mothers with 20-25 nymphs per leaf typical. (Lyon). CALIFORNIA - Neothomasia populicola infesting balsam popular in Willows, Glenn County. (Cal. Coop. Rpt.).

WALKINGSTICKS - GEORGIA - Caused heavy defoliation of shrubbery in Macon County. (Mathis). SOUTH CAROLINA - Found in Oconee County (Mountain Rest). (Nettles et al.).

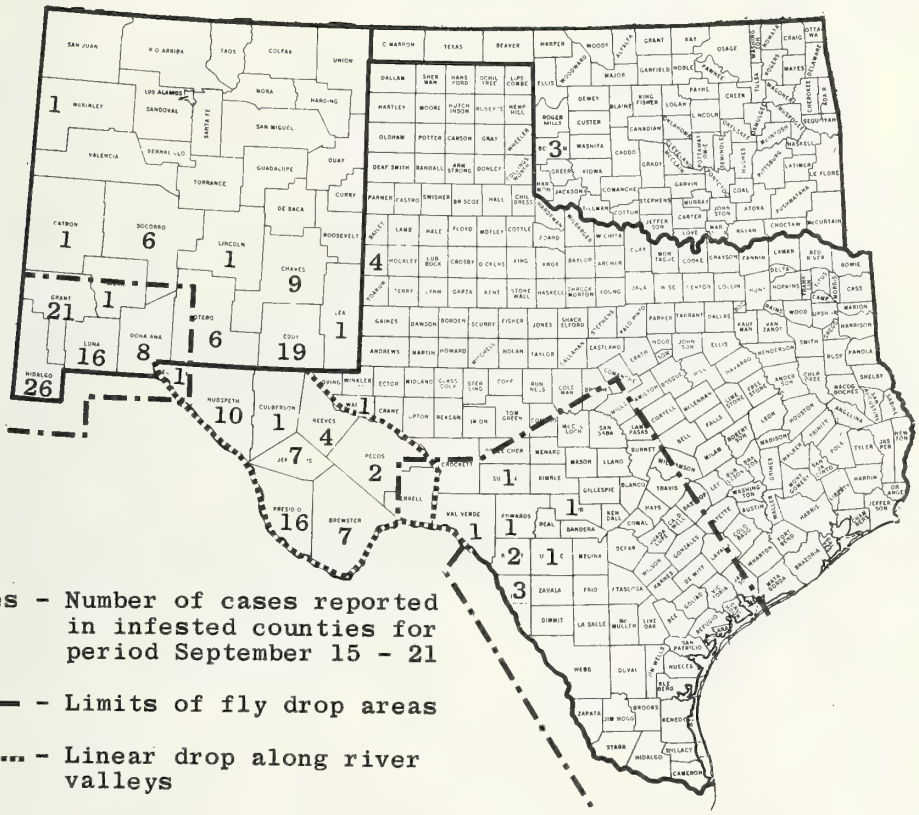
SPIDER MITES - COLORADO - Continue a problem on shrubs and trees throughout State. (Hantsbarger). NEW MEXICO - Eotetranychus libocedri collected on arborvitae at Albuquerque. E. weldoni collected from willow at Artesia, Eddy County; causing considerable damage to foliage. Heavy populations of Oligonychus ununguis damaged juniper during summer months at Los Lunas, Valencia County. (N. M. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - UTAH - Quite troublesome in Davis County and parts of Box Elder County since rains during past 2 weeks. Troublesome in several locations in Cache County. (Knowlton, Sept. 23). WISCONSIN - Complaints minimal; usual numbers encountered near river bottoms not present. (Wis. Ins. Sur.).

STATUS OF THE SCREW-WORM (Cochliomyia hominivorax) IN THE SOUTHWEST

During the period September 15 - 21, a total of 63 infestations was reported from TEXAS; 116 from NEW MEXICO; and 3 from OKLAHOMA. Specimens were reported from 17 counties in Texas, 12 in New Mexico, and 1 county in Oklahoma. A total of 109,210,000 sterile flies was released during the period. (Anim. Dis. Erad. Div.).



STABLE FLY (Stomoxys calcitrans) - WISCONSIN - Activity still noticeable in Iowa and Fond du Lac Counties; causing concern in latter county. (Wis. Ins. Sur.). OKLAHOMA - Populations down from previous week in Stillwater area; light numbers on animals in Love County (south central). (Okla. Coop. Sur.).

HORN FLY (Haematobia irritans) - OKLAHOMA - Populations down somewhat on animals in Stillwater area (north central); generally light on animals in south central area. Ranged 200-700 per head on unsprayed animals in Bryan County; ranged 150-750 per head on animals checked in Love County. (Okla. Coop. Sur.).

HOUSE FLY (Musca domestica) - MICHIGAN - Adults annoying on some Ingham County livestock farms. (Dowdy). WISCONSIN - Activity particularly noticeable in Vilas and Monroe Counties. More of a problem as a pest than for high numbers. (Wis. Ins. Sur.). NEBRASKA - Adults very active and annoying in city and rural areas in eastern third of State. (Bergman). OKLAHOMA - Increasing around buildings in Stillwater area (north central); moderate around pens and barns in Love County. (Okla. Coop. Sur.). UTAH - Very troublesome about many Iron County communities. (Knowlton, Sjoblom). Very abundant about cattle feeding corral near Ogden. (Knowlton). Flies lighting on faces of cattle and horses and feeding on secretions of eyes in Box Elder, Weber and Davis Counties determined this species. (Sabrosky, Hanson, Knowlton).

FACE FLY (Musca autumnalis) - ILLINOIS - Inspection of 28 herds of cattle negative in southern counties. (Ill. Ins. Rpt.).

FLEAS (Ctenocephalides spp.) - MINNESOTA - Numerous reports of C. canis and C. felis noted; troublesome to pets and owners in homes. (Minn. Ins. Rpt., Sept. 20). OKLAHOMA - C. canis continues to cause nuisance in number of homes in Stillwater area, Payne County. (Okla. Coop. Sur.).

AMERICAN DOG TICK (Dermacentor variabilis) - OHIO - Quite abundant during past year in Delaware area, Delaware County. (Hansel).

EAR TICK (Otobius megnini) - UTAH - Some reported in eastern Iron County. (Knowlton).

CATTLE LICE - UTAH - Moderately numerous on some Iron County herds. (Knowlton, Sjoblom).

TROPICAL RAT MITE (Ornithonyssus bacoti) - OHIO - Specimens collected from rats at zoo near Columbus, Franklin County. (Johnson, Sept. 18).

A SNAKE MITE (Ophionyssus natricis) - OHIO - Crawlers collected from a snake at zoo near Columbus, Franklin County. (Johnson, Sept. 18).

HOUSEHOLD AND STRUCTURAL INSECTS

BROWN-BANDED COCKROACH (Supella supellectilium) - DELAWARE - Heavy in home in northern New Castle County. (Burbutis). MICHIGAN - Problem locally in Lower Peninsula. (Shafer, Chartrand, Mason). UTAH - Infested several apartments at Logan. (Knowlton).

ORIENTAL COCKROACH (Blatta orientalis) - UTAH - Infesting large apartment building in Salt Lake City. (Knowlton).

AN EARWIG (Labidura riparia) - GEORGIA - Heavy infestations of probably this species in homes in Macon. (Brightwell).

EUROPEAN EARWIG (Forficula auricularia) - UTAH - Quite numerous and troublesome about many homes in Iron County communities this summer. (Knowlton, Sjoblom).

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) - NORTH CAROLINA - Problem in several homes in Cherokee County. (Stewart, Robertson). MICHIGAN - Local household problem in Wayne County. (Gould). RHODE ISLAND - Noted in Cranston and Greenville, Providence County. (Cartier, Mathewson).

COWPEA WEEVIL (Callosobruchus maculatus) - NEW MEXICO - Heavy in stored pinto beans and black-eye peas in home at Santa Fe. (N. M. Coop. Rpt.).

A WEEVIL (Nemocestes incomptus) - CALIFORNIA - Large numbers of adults invading residence in Berkeley, Alameda County. (Cal. Coop. Rpt.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - UTAH - Invaded homes at Holladay, Salt Lake County. (Knowlton).

BOXELDER BUG (Leptocoris trivittatus) - NORTH DAKOTA - Adults nuisance around homes in St. Thomas area, Pembina County. (N. D. Ins. Sur.).

SPRINGTAILS - MICHIGAN - Household problem locally on Lower Peninsula. (Shafer, Chartrand, Mason). UTAH - Entering home adjacent to alfalfa field at Sandy, Salt Lake County. (Knowlton). COLORADO - Continues as problem in homes in many parts of State. (Hantsbarger).

TICKS - FLORIDA - Problem in residences in Stanford, Seminole County; worst ever encountered. (Desin). COLORADO - Rhipicephalus sanguineus heavy in new home in Denver. (Poyner, Bates).

BLACK WIDOW SPIDER (Latrodectus mactans) - UTAH - Causing concern in homes in Salt Lake County. (Knowlton, Rose). In home at Sunset, Davis County. (Knowlton).

MITES - MICHIGAN - Unspecified species from Starling nests household problem locally in Lower Peninsula. (Shafer, Chartrand, Mason).

SOWBUGS - MICHIGAN - Household problem locally on Lower Peninsula. (Shafer, Chartrand, Mason).

MILLIPEDS - MINNESOTA - Quite numerous in homes in Minneapolis-St. Paul area. (Minn. Ins. Rpt., Sept. 20).

HOUSE FLY (Musca domestica) - VIRGINIA - Very common in motels, restaurants and other places in Stafford, King George and Westmoreland Counties. Pollenia rudis and M. autumnalis associated with this species in mountains; expected to enter homes in near future. (Tarpley).

STORED-PRODUCT INSECTS

POTATO TUBERWORM (Gnorimoschema operculella) - DELAWARE - Heavy on tubers stored in corncrib in Sussex County; 50-60 bags involved. (Humphreys). TEXAS - Stored seed potatoes in local areas of Harris County heavily damaged by larvae. (Davis, Larsen).

INDIAN-MEAL MOTH (Plodia interpunctella) - ALABAMA - General emergence of adults noted in large warehouse in Mobile County. (Seibels, Wallace).

MEDITERRANEAN FLOUR MOTH (Anagasta kühniella) - FLORIDA - Infested stacked oats at Palatka, Putnam County. (Adkins, Sept. 13).

GRANARY WEEVIL (Sitophilus granarius) - WISCONSIN - Probably this species infested recently harvested grain locally in Fond du Lac County. (Wis. Ins. Sur.).

CIGARETTE BEETLE (Lasioderma serricorne) - FLORIDA - Light on cottonseed meal and soybean meal cake at Palatka, Putnam County, (Sept. 13); and wheat bran at High Springs, Alachua County (Sept. 12). (Adkins).

CADELLE (Tenebroides mauritanicus) - FLORIDA - Light on soybean meal cake at Palatka, Putnam County. (Adkins, Sept. 13).

DARKLING BEETLES - ALABAMA - Occasional Letheticus oryzae specimen taken from warehouses in Mobile County. (Seibels). COLORADO - Adults of Tenebrio sp. found in grain elevator in Kiowa County. (Hantsbarger).

BENEFICIAL INSECTS

LADY BEETLES - MARYLAND - Adults and larvae of Hippodamia convergens very abundant on late tobacco in Anne Arundel and Calvert Counties. (U. Md., Ent. Dept.). NORTH DAKOTA - Trace numbers of Hippodamia convergens and Adalia bipunctata on alfalfa over eastern quarter of State. (N. D. Ins. Sur.). WYOMING - Adults of several species averaged 34 per 100 sweeps in alfalfa fields of Sheridan, Johnson and Natrona Counties. (Marks).

A PUNCTUREVINE WEEVIL (Microlarinus lareynii) - UTAH - Appears to be established at Perry, Box Elder County, and Santa Clara, Washington County; attacking seeds and feeding on vines in release area. (Knowlton, Sjoblom).

DAMSEL BUGS (Nabis spp.) - NORTH DAKOTA - N. roseipennis most abundant predator in alfalfa in eastern quarter of State; ranged 1-3 per sweep. (N. D. Ins. Sur.). WYOMING - Nabis sp. averaged 27 per 100 sweeps in alfalfa fields of Sheridan, Johnson, and Natrona Counties. (Marks).

GREEN LACEWINGS (Chrysopa spp.) - NORTH DAKOTA - Trace in alfalfa throughout eastern quarter of State. (N. D. Ins. Sur.).

MISCELLANEOUS INSECTS

WHITE-FRINGED BEETLE (Graphognathus spp.) - GEORGIA - Light to moderate in residental areas of Thomasville; this is first report of infestation in Thomas County. (Elder, Sept. 18).

JAPANESE BEETLE (Popillia japonica) - MICHIGAN - Few additional adults taken in Detroit, Wayne County; Ypsilanti, Washtenaw County, and in Calhoun County area. Infested area in Calhoun County involves 67,744 acres; in Kalamazoo County, infestation involves 40 acres in 5 spot locations. Around Ypsilanti, area enlarged somewhat but acreage involved not yet determined. (Turner, Carlson).

LARGER YELLOW ANT (Acanthomyops interjectus) - RHODE ISLAND - Flights of alates noted in Lincoln and Cumberland, Providence County. (Cartier, Mathewson).

A NOCTUID MOTH (Bomolocha abalienalis) - DELAWARE - Adults collected by D. F. Bray July 10, 1963, at Newark; det. by E. L. Todd. This is a new State record. (Burbutis).

A CHRYSAUGID MOTH (Galasa rubidana) - DELAWARE - Adults collected at light at Newark by D. F. Bray July 1, 1963; det. by R. W. Hodges. This is a new State record. (Burbutis).

A GRASS MOTH (Crambus elegans) - DELAWARE - Adults collected at light at Newark June 17, 1963, by D. F. Bray; det. by R. W. Hodges. This is a new State record. (Burbutis).

A PYRAUSTID MOTH (Udea profundalis) - CALIFORNIA - Heavy flight of adults occurring in walnut trees in Paicines, San Benito County, and medium in grass roots in walnut orchard in La Grange, Stainslaus County. (Cal. Coop. Rpt.).

TOMATO HORNWORM (Protoparce quinquemaculata) - MICHIGAN - Six adults taken at blacklight traps from 3 locations week ending September 23; unseasonably late collection for State. (Newman).

IRIS BORER (Macronoctua onusta) - WISCONSIN - Adults caught in increasing numbers in traps during week. (Wis. Ins. Sur.).

BED BUG (Cimex lectularius) - SOUTH DAKOTA - Population extremely high in chicken litter in laying house in Brookings County. (Hintz).

FALSE CHINCH BUG (Nysius ericae) - UTAH - Column 90 feet long and 2 to more than 4 feet wide moved south on farm at Lewiston, Cache County, September 20-21; 99 percent nymphs. (Knowlton).

CORRECTIONS

CEIR 13(39):1137 - CORN EARWORM - VIRGINIA - Sixth line should read "medium in Prince George and Sussex Counties ..."

CEIR 13(39):1155 - SCREW-WORM (Callitroga hominivorax) - ARIZONA - should read (Cochliomyia hominivorax).

CEIR 13(39):1155 - STATUS OF THE SCREW-WORM IN THE SOUTHWEST - Next to last line should read "... released during period September 8 - ..."

ADDITIONAL NOTES

WASHINGTON - Larvae of a NOCTUID (Cucullia postera, race omissa) attacking aster buds and flowers at Friday Harbor, San Juan County; petals and center of flowers eaten; 14 larvae observed in 20 feet of row. (Baker). BLACK PINE LEAF SCALE (Aspidiotus californicus) seriously damaging ponderosa pine at Spokane, Spokane County (Telford, Kruiswyk), and ELM LEAF BEETLE (Galerucella xanthomelaena) seriously defoliating elm at Inchelium, Ferry County (Telford, Osburn). NOCTUID and CRAMBID MOTHS particularly abundant on lawns at Pullman, Whitman County. (Telford).

KANSAS - ELM LEAF BEETLE larvae and eggs noted on elms in Doniphan County, northeast; a new county record. (Guldner, Charlton, Sept. 19). TWIG GIRDLERS (unidentified) girdled branches of elm and hickory in Douglas County, east central. (Mills, Sept. 16).

LIGHT TRAP COLLECTIONS

	Temperature°F.	Precipitation	Type of trap *	Agrotis ipsilon (black cutworm)	Carpocapsa pomonella (codling moth)	Chorizagrotis auxiliaris (army cutworm)	Estigmene acrea (salt-marsh caterpillar)	Faronta diffusa (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	Heliothis zea (bollworm, corn earworm)	Laphygma frugiperda (fall armyworm)	Loxostege commixtalis (alfalfa webworm)	Loxostege similalis (garden webworm)	Loxostege sticticalis (beet webworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Prodenia ornithogalli (yellow-striped armyworm)	Protoparce quinquemaculata (tomato hornworm)	Protoparce sexta (tobacco hornworm)	Pseudaletia unipuncta (army worm)	Spodoptera exigua (beet armyworm)	Trichoplusia ni (cabbage looper)	Major crop **
CALIFORNIA																								
Davis 9/21-27				25				1200								2				93	22			Misc.
COLORADO																								
Rocky Ford 9/20-27										509														
GEORGIA																								
Tifton 9/12-18									15	386									6					
Tifton 9/19-25									19	162									1					
ILLINOIS (County)																								
Champaign 9/20-26	52-68	none								26	6					2	1		1	17				
KANSAS																								
Garden City 9/11, 13, 16, 18, 20, 23				37		4		2		304							20			50				
Hays 9/25				1						19						3	2			9				
Manhattan 9/13-26				14				3		627					1	5	65			100				
Mound Valley 9/12, 24				2				1		73							6			16				
MARYLAND																								
Centreville 9/11-15				3					43		15				46	7			4	26				
MICHIGAN (Counties)																								
Berrien 9/17-23			BL	7						5						7	3			8		4		
Monroe 9/17-23			2 BL	31						12						26	14			57		14		
Wayne 9/17-23			2 BL	22						3					3	22	7			37		8		
Macomb 9/17-23			2 BL	18						7					4	15	12			37		9		
Washtenaw 9/17-23			BL	18						3					3	14	3			28		7		
Jackson 9/17-23			BL	5											5	3				7				
Livingston 9/17-23			2 BL	29						5						28	8			54		7		
Kent 9/17-23			BL	23						4						19	4			29		7		
Newaygo 9/17-23			BL	12						2					2	14	4			17		4		
MISSISSIPPI																								
Stoneville 9/20-26	50-90	none	MV	40			44		56	54	907	143				2	363		11	51	372	1141		
Stoneville 9/20-26	50-90	none	BL	92			21		42	84	2326	410					296		11	92	814	1094		
NEBRASKA																								
Bushnell 9/8-16				13		363				1	82				2	7				12				
Kearney 9/10-17				52		30				5	261	5			38	6	3	9	9	205				
Lincoln 9/12-18				8				9		6	1488	95			51		55		1	26				
Lincoln 9/19-25				9				6		4	1065	84			51	5	44	1	1	38				
McCook 9/14-16				25		33				1	263	3			15	8	8		3	250				
North Platte 9/11-17				146		287		1			515	97			37	37	8	1		214				
Ogallala 9/9-12				6		32					28									15				
Scotts Bluff Expt. Sta. 9/11-17				20		99		2		1	52					20		3		37				

Continued on page 1191

* BL = blacklight; I = incandescent; MV = mercury vapor ; O = other

** alf. = alfalfa; beet = garden beet and/or sugar beet; cole = cole crops (crucifers); cott. = cotton; FC = field corn; grain = small grains; leg. = legumes (unspecified); lett. = lettuce; pean. = peanut; pepp. = pepper; pot. = potatoes; SC = sweet corn; sol. = solanaceous plants (unspecified); soy. = soybean; TC = truck crops (unspecified or mixed); tob. = tobacco; tom. = tomato.

LIGHT TRAP COLLECTIONS

	Temperature °F.	Precipitation	Type of trap *	Agrotis ipsilon (black cutworm)	Carpocapsa pomonella (codling moth)	Chorizagrotis auxiliaris (army cutworm)	Estigmene acrea (salt-marsh caterpillar)	Faronta diffusa (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	Heliothis zea (bollworm, corn earworm)	Laphygma frugiperda (fall armyworm)	Loxostege commixtalis (alfalfa webworm)	Loxostege sinilalis (garden webworm)	Loxostege sticticalis (beet webworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Prodenia ornithogalli (yellow-striped armyworm)	Protoparce quinquemaculata (tomato hornworm)	Protoparce sexta (tobacco hornworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Trichoplusia ni (cabbage looper)	Major crop **
NORTH DAKOTA																								
Fargo 9/21-27				2				1		2										2				
SOUTH CAROLINA																								
Charleston 9/16-22	58-82	0.41	BL	21					25	2	190	23				2	13	2	15	35		5		
Clemson 9/14-20				4					1		18	40				4	64	1	1	25		1		
TEXAS																								
Brownsville 9/20-26			5 BL	220			82		56	24	516	1008				168	56	5	135	3496		184		
Waco 9/21-27			BL	16			27		43		866					55	89			101		431		
WYOMING																								
Cheyenne 9/6-12				8		226					3					2				8				
INDIANA (Counties)																								
Howard 9/19-24											8							4	5					
Marshall 9/18-24											4							3						
Lawrence 9/12-19				5							7					3	13	4	6	17				
Jasper 9/17-24				9							12				118	80	2	5	3	10				
Vanderburgh 9/17-21											16				10			2		3				
La Porte 9/18-23				3							20				1	2		1		9				
SOUTH CAROLINA																								
Charleston 9/23-29	52-81	1.58	BL	30					25		83	8					7	1	5	23				

* BL = blacklight; I = incandescent; MV = mercury vapor ; O = other

** alf. = alfalfa; beet = garden beet and/or sugar beet; cole = cole crops (crucifers); cott. = cotton; FC = field corn; grain = small grains; leg. = legumes (unspecified); lett. = lettuce; pean. = peanut; pepp. = pepper; pot. = potatoes; SC = sweet corn; sol. = solanaceous plants (unspecified); soy. = soybean; TC = truck crops (unspecified or mixed); tob. = tobacco; tom. = tomato.

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING Wheat (Commodity) IN Kansas (State or District) DURING 1962 (Year)

A.	Pest or pest complex Army cutworm	
B.	Number of acres[a] produced (From CRS)	No. 8,986,000
C.	Average yield per acre[a] (From CRS)	Units/ 23.5 bu.
D.	Price[b] per unit (bu.)[c] (From CRS)	$/ 2.02 - December 15, 1962
E.	Acres[a] needing control	No. 53,554
F.	Acres[a] treated	No. 8,460
G.	Reduction due to not treating where needed:	
	H. Loss in yield, percent	% ------
	I. Loss in yield, units per acre[a], C x H	Units/ 4.3 bu.
	J. Loss in yield, $ per acre[a], D x I	$/ 8.69
	K. Loss in quality, $ per [a]	$/ ------
L.	Yield loss for all acres[a], (E-F) x I	Units 193,904.2 bu.
M.	Control cost, $ per acre[a]	$/ 2.40
N.	Control cost for all acres[a], F x M	$ 20,304.00
O.	Yield loss for all acres[a], (E-F) x J	$ 391,869.00
P.	Quality loss for all [a], (E-F) x K	$ -----
Q.	Combined control cost and losses, N + O + P	$ 412,173.00

Comment: Total value of crop: $426,565,420.00. Percent loss: 0.1

a. Acres, head of cattle or other producing units used by Crop Reporting Service.

b. Season average price per unit as given by CRS (describe basis).

c. Bushels, boxes, tons or other marketing units used by CRS; show which in ( ).

Submitted by Leroy L. Peters

Date 4-11-63

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING Corn for grain (Commodity) IN Kansas (State or District) DURING 1962 (Year)

A. Pest or pest complex Corn earworm		
B. Number of acres[a] produced (From CRS)	No.	1,298,000
C. Average yield per acre[a] (From CRS)	Units/	51.0 bu.
D. Price[b] per unit (bu.)[c] (From CRS)	$/	1.03 - December 15, 1962
E. Acres[a] infested	No.	1,298,000
F. Acres[a] treated	No.	7,033
G. Reduction due to not treating where needed:		
H. Loss in yield, percent	%	1.25
I. Loss in yield, units per acre[a], C x H	Units/	0.64
J. Loss in yield, $ per acre[a], D x I	$/	0.66
K. Loss in quality, $ per [a]	$/	-------
L. Yield loss for all acres[a], (E-F) x I	Units	826,218.9
M. Control cost, $ per acre[a]	$/	2.00
N. Control cost for all acres[a], F x M	$	14,066.00
O. Yield loss for all acres[a], (E-F) x J	$	852,038.00
P. Quality loss for all [a], (E-F) x K	$	-------
Q. Combined control cost and losses, N + O + P	$	866,104.00

Comment: Total crop value: $68,183,940.00. Percent loss: 1.2

a. Acres, head of cattle or other producing units used by Crop Reporting Service.

b. Season average price per unit as given by CRS (describe basis).

c. Bushels, boxes, tons or other marketing units used by CRS; show which in ( ).

Submitted by Leroy L. Peters

Date 4-11-63

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING Peanuts (Commodity) IN Georgia (State or District) DURING 1962 (Year)

A.	Pest or pest complex Southern corn rootworm	
B.	Number of acres [a] produced (From CRS)	No. 500,000
C.	Average yield per acre [a] (From CRS)	Units/ 1,200 lbs./acre
D.	Price[b] per unit (lb.)[c] (From CRS)	$/ .10
E.	Acres [a] needing control	No. 3,000
F.	Acres [a] treated	No. 2,500
G.	Reduction due to not treating where needed:	
	H. Loss in yield, percent	% 20
	I. Loss in yield, units per acre [a], C x H	Units/ 240 lbs.
	J. Loss in yield, $ per acre [a], D x I	$/ 24.00
	K. Loss in quality, $ per acre [a]	$/ 5.00
L.	Yield loss for all acres, (E-F) x I	Units 120,000
M.	Control cost, $10 x 200 = $2,000 $ 4 x 300 = $1,200 $ 2 x 2,000 = $4,000	$ 4 x 300 Parathion granules $10 x 200 Diazinon granules $ 2 x 2,000 Sevin or Parathion dust
N.	Control cost for all acres [a], F x M	$ 7,200
O.	Yield loss for all acres [a], (E-F) x J	$ 12,000
P.	Quality loss for all acres [a], (E-F) x K	$ 2,500
Q.	Combined control cost and losses, N + O + P	$ 21,700

Comment: Southern corn rootworm is known to be in Early, Clay, Randolph and Calhoun Counties. In 1961 this insect caused $140,000 loss to peanut growers.

a. Acres, head of cattle or other producing units used by Crop Reporting Service.

b. Season average price per unit as given by CRS (describe basis).

c. Bushels, boxes, tons or other marketing units used by CRS; show which in ( ).

Submitted by W. C. Johnson

Date 6-1-63

STATE OF CALIFORNIA
DEPARTMENT OF AGRICULTURE
SACRAMENTO

June 28, 1963

C O P Y E-82-5

TO: All County Agricultural Commissioners

SUBJECT: Estimated Damage and Crop Loss Caused by Insect/Mite Pests - 1962

This report of estimated damage and dollar crop loss attributed to insect/mite pests is a summarization of special reports submitted by the County Agricultural Commissioners. Preparation of this information involves a great deal of work by each County, and yet this data must of necessity be considered an estimate only, as the final crop return information is not available at the required time of preparation. The majority of the county reports were complete, giving estimated crop value, percentage loss caused by insects and treatment costs on many of the 250 different kinds of commercial crops grown in the State on 131,000 farms. Weather conditions during 1962 varied from normal patterns and many species of insect/mites developed severe pest populations relatively rapidly.

Tallying of related pests comprising more than one species as a group was more prevalent this year in field reports than has formerly been done, however, when damage/loss is attributed to a single species it is so credited. The totals for assessable yield loss and control costs do not always equal the estimated overall total due to the overlapping of treatments for one or more species of insects plus diseases or nutritional deficiency. For a more accurate representation of state-wide losses, the maximum-minimum value is given rather than striking an average.

Estimates in the pests of animals are partially incomplete due to lack of centralized reporting, consequently they represent only a limited number of counties. Forest pests are included through cooperation with the U.S. Forest Service. In the case of Structural Pest Control reports estimated dollar costs for individual structural pests are impossible to completely assess as treatment for a combination of insect pests, rodents and wood rots is a general practice in the industry. Termites are probably the most important from the economic standpoint.

The attached table presents the breakdown of assigned damage/loss dollar value.

/s/ Ronald M. Hawthorne

Ronald M. Hawthorne
Economic Entomologist

Robert W. Harper, Chief
Bureau of Entomology

Attach.

CROP LOSS ESTIMATE REPORT FOR CALIFORNIA - 1962

Insects	Assessable Yield Loss ($)	Control Cost ($)	% Loss of Crop Value	Estimated Overall Loss ($)
Mites (nonspecific)	36,647,529	13,876,531	.04-10	51,050,075
Brown wheat mite (Petrobia latens)	---	2,000	0-3	2,000
Citrus red mite (Panonychus citri)	5,687,464	2,968,715	1-6	8,656,180
Citrus rust mite (Phyllocoptruta oleivora)	25,000	10,000	.4	35,000
Clover mite (Bryobia praetiosa)	78,700	61,000	.75	139,700
European red mite (Panonychus ulmi)	853,500	950,000	.0019-5	1,798,500
Pacific spider mite (Tetranychus pacificus)	17,500	36,800	0-.2	54,300
Pear leaf blister mite (Eriophyes pyri)	25,600	113,200	5-7.8	138,800
Pear rust mite (Epitrimerus pyri)	20,000	30,000	.05-2	50,000
Tomato russet mite (Aculus lycopersici)	250,000	81,750	0-7	331,750
Two-spotted spider mite (Tetranychus telarius)	1,201,050	1,210,100	.0078-5	2,411,150
Winter grain mite (Penthaleus major)	2,000	600	3	2,600
A spider mite (Eotetranychus willamettei)	1,300	2,500	0-2	3,800
Mites All - Total	44,809,643	19,343,196		64,673,855
European earwig (Forficula auricularia)	1,200	1,600	1-10	3,100
Grasshoppers	234,450	38,785	.05-4	276,035
Field crickets (Gryllus spp.)	4,000,000	1,000,000	0-6	5,000,000
Thrips (nonspecific)	5,095,005	2,726,844	.05-8	7,777,149
Citrus thrips (Scirtothrips citri)	2,184,679	508,290	3-4.6	2,693,269
Pear thrips (Taeniothrips inconsequens)	28,000	100,000	0-.0091	128,000
A western flower thrips (Frankliniella occidentalis)	160,000	100,000	0-1	260,000
Thrips All - Total	7,467,684	3,435,134		10,858,418
Leafhoppers (nonspecific)	7,074,307	5,425,937	.06-1.7	12,505,244
Beet leafhopper (Circulifer tenellus)	269,000	110,000	1.4-5	379,000
Grape leafhoppers (Erythroneura spp.)	1,994,770	1,008,678	.02-5	3,003,448
Leafhoppers All - Total	9,095,977	6,544,615		15,546,592
Pear psylla (Psylla pyricola)	2,059,000	531,000	.09-20	2,590,000

Insects	Assessable Yield Loss ($)	Control Cost ($)	% Loss of Crop Value	Estimated Overall Loss ($)
Aphids (nonspecific)	11,270,922	6,721,725	.05-8	17,701,778
Apple aphid (*Aphis pomi*)	50,000	51,000	.0166-2	101,500
Cabbage aphid (*Brevicoryne brassicae*)	366,534	300,000	.2-6.7	667,034
Green peach aphid (*Myzus persicae*)	2,263,900	2,733,500	1-8	4,997,400
Mealy plum aphid (*Hyalopterus pruni*)	1,200	800	0-1.0	2,000
Melon aphid (*Aphis gossypii*)	1,009,000	23,500	2-3.59	1,032,500
Pea aphid (*Acyrthosiphon pisum*)	71,150	98,000	.1-.17	169,150
Potato aphid (*Macrosiphum euphorbiae*)	39,000	52,000	0-2	91,360
Rosy apple aphid (*Anuraphis rosea*)	160,000	140,000	0-.0366	300,000
Spotted alfalfa aphid (*Therioaphis maculata*)	301,800	77,600	.004-10	379,400
Walnut aphid (*Chromaphis juglandicola*)	270,430	254,580	.03-10	525,010
Aphids All - Total	15,803,936	10,453,205		25,967,132
Mealybugs (nonspecific)	115,000	52,968	.2-6	167,968
Citrus mealybug (*Pseudococcus citri*)	2,650,000	125,000	0-.5	2,775,000
Grape mealybug (*Pseudococcus maritimus*)	3,500	11,910	0-.01	15,410
Mealybugs All - Total	2,768,500	189,878		2,958,378
Scales (nonspecific)	777,100	1,039,730	.7-5	1,801,230
Black scale (*Saissetia oleae*)	3,053,000	743,500	1-5	3,796,500
Brown soft scale (*Coccus hesperidum*)	3,000	11,000	0-1	14,000
California red scale (*Aonidiella aurantii*)	552,037	1,313,872	.5-3.2	1,865,910
European fruit lecanium (*Lecanium corni*)	28,000	100,000	0-.001	128,000
Greedy scale (*Aspidiotus camelliae*)	2,000	5,000	0-.5	7,000
Italian pear scale (*Epidiaspis piricola*)	---	80,000	0-.010	80,000
Olive scale (*Parlatoria oleae*)	885,250	1,229,548	.062-3	2,114,798
San Jose scale (*Aspidiotus perniciosus*)	1,679,584	1,549,712	.010-10	3,229,296
Yellow scale (*Aonidiella citrina*)	384,226	625,257	0-1	1,009,483
Scales All - Total	7,364,197	6,697,619		14,046,217
Whiteflies	90,000	10,000	0-10	100,000
Lygus bugs (*Lygus* spp.)	23,679,328	9,372,811	.038-8.7	33,052,134
Stink bugs	3,077,100	2,206,800	.07-8	5,283,900
Alfalfa weevil (*Hypera postica*)	294,000	43,000	5-15	369,040

Insects	Assessable Yield Loss ($)	Control Costs ($)	% Loss of Crop Value	Estimated Overall Loss ($)
Clover leaf weevil (*Hypera punctata*)	10,000	7,500	0-.5	17,500
Cucumber beetles (*Diabrotica* spp.)	33,000	10,000	---	43,000
Darkling beetles (*Blapstinus* sp. and *Metoponium* sp.)	13,000	5,000	0-1	18,000
Elm leaf beetle (*Galerucella xanthomelaena*)	1,000	1,000	0-5	2,000
Tobacco flea beetle (*Epitrix hirtipennis*)	39,000	9,000	0-.5	48,000
Flatheaded apple tree borers (*Chrysobothris* spp.)	2,215	100	0-2	2,315
Shot-hole borer (*Scolytus rugulosus*)	1,024,000	250,000	3-10	1,274,000
Wireworms	89,000	41,000	0-.7	130,000
Cabbage maggot (*Hylemya brassicae*)	20,000	11,000	0-1.0	31,000
Onion maggot (*Hylemya antiqua*)	927	1,137	0-1	2,064
Leaf miners (nonspecific)	88,872	699,827	.6-3	789,699
A rice leaf miner (*Hydrellia griseola*)	161,000	72,000	.5-1	233,000
Leaf miners All - Total	249,872	771,827		1,022,699
Walnut husk fly (*Rhagoletis completa*)	260,080	71,800	3-16.9	331,880
Armyworm (*Pseudaletia unipuncta*)	7,096,038	4,988,315	.025-10	12,084,354
Artichoke plume moth (*Platyptilia carduidactyla*)	531,160	98,008	12-55	629,168
Beet armyworm (*Spodoptera exigua*)	3,000,000	1,150,000	0-6	4,150,000
Cabbage looper (*Trichoplusia ni*)	6,550,000	4,315,350	1.4-10	10,865,350
Codling moth (*Carpocapsa pomonella*)	1,315,850	2,268,253	.06-18	3,584,103
Corn earworm (*Heliothis zea*)	22,412,516	8,771,341	.01-13.9	31,164,658
Cotton leaf perforator (*Bucculatrix thurberiella*)	23,257	109,588	0-1.2	132,845

Insects	Assessable Yield Loss ($)	Control Costs ($)	% Loss of Crop Value	Estimated Overall Loss ($)
Cutworms	1,417,547	476,306	0.1-2	1,893,880
Imported cabbageworm (*Pieris rapae*)	6,000	6,000	0-.4	12,000
Lima-bean pod borer (*Etiella zinckenella*)	151,000	93,600	0-4	244,600
Navel orangeworm (*Paramyelois transitella*)	292,000	44,000	.03-4	336,000
Orange tortrix (*Argyrotaenia citrana*)	800,000	288,000	1.09-4	1,088,000
Oriental fruit moth (*Grapholitha molesta*)	414,750	177,380	.097-6	592,130
Peach twig borer (*Anarsia lineatella*)	1,933,124	2,836,046	.03-8	4,769,170
Potato tuberworm (*Gnorimoschema operculella*)	988,410	838,726	2.2-10	1,827,136
Red-humped caterpillar (*Schizura concinna*)	3,850	2,000	0-5	5,850
Salt-marsh caterpillar (*Estigmene acrea*)	3,066,700	715,500	1.3-4	3,782,200
Tent caterpillars (*Malacosoma* spp.)	540	1,000	0-1	1,540
Tobacco hornworm (*Protoparce sexta*)	215,000	74,053	0-2	289,053
Tomato pinworm (*Keiferia lycopersicella*)	50,000	200,000	0-1	250,000
Western peach tree borer (*Sanninoidea exitiosa graefi*)	72,980	478,000	2-11	550,980
Grain storage: Coleoptera and Lepidoptera	300,500	30,500	1-1.5	331,000
Tadpole shrimp (*Apus oryzaphagus*)	206,000	75,000	1-1.2	281,000
Agricultural Pests - Total	173,576,431	181,983,973		262,512,276
Pest of Animals				
Northern fowl mite (*Ornithonyssus sylviarum*)	50,000	3,000	0-.2	53,000
Cattle lice (*Haematopinus* spp., *Bovicola* spp., *Trichodectes* spp., *Linognathus* spp.)	90,750	11,900	.06-2	103,150

Pest of Animals	Assessable Yield Loss ($)	Control Cost ($)	% Loss of Crop Value	Estimated Overall Loss ($)
Common cattle grub (*Hypoderma lineatum*)	241,040	12,200	.09-2	253,240
Horn fly (*Haematobia irritans*)	1,900	4,350	0-.17	6,250
Horse flies (*Tabanus* spp.)	825	900	0-.07	1,725
Flies and Mosquitoes	---	8,750	0-1.0	50,000
Pest of Animals - Total	384,515	41,100		467,365
Agricultural and Animal Pests - Total	173,960,946	182,025,073		262,979,641

Forest Pests		Estimated Value of Stumpage Killed 1/
Western pine beetle (*Dendroctonus brevicomis*)	1.5	13,000,000
Mountain pine beetle (*Dendroctonus monticolae*)	1.0	6,900,000
California five-spined ips (*Ips confusus*)	.2	250,000
Fir engraver (*Scolytus ventralis*)	1.4	4,700,000
Douglas-fir beetle (*Dendroctonus pseudotsugae*)	.1	1,600,000
Jeffrey pine beetle (*Dendroctonus jeffreyi*)	.5	1,000,000
California flatheaded borer (*Melanophila californica*)	.1	150,000
Flatheaded fir borer (*Melanophila drummondi*)	.1	100,000
A pine engraver (*Ips oregonis*)	.1	100,000
Lodgepole needle miner ("*Recurvaria*" *milleri*)	(unknown)	---
Forest Pests - Total		27,800,000

1/ From stumpage prices for sawtimber sold from National Forests for Fiscal Year 1962. The estimated loss includes inoperable areas and commercial forest stands on lands of all ownerships.

Species	Resource Million Board Feet	Normal Average Annual	Ratio 62/Normal	Percent of Stand 1962	Million Board Feet	Value of Stumpage Millions of Dollars 1/
Douglas-fir	120,625	0.56	0.25	.14	169	1.7
True firs	88,820	0.68	2.00	1.38	1,208	4.7
Ponderosa pine	53,455	0.50	3.00	1.50	802	13.9
Sugar pine	27,522	0.55	1.75	.96	264	5.9
Jeffrey pine	13,364	0.41	1.25	.51	68	1.2
Incense-cedar	8,810	0.11	1.00	.11	10	.1
Lodgepole pine	4,273	0.55	1.50	.82	35	.1
Western white pine	2,036	0.55	1.00	.55	11	.2
	318,905				2,567	27.8

1/ From stumpage prices for sawtimber sold from National Forests for Fiscal Year 1962. The estimated loss includes inoperable areas and commercial forest stands on lands of all ownerships.

STRUCTURAL PEST CONTROL

Structural pests are those referred to as household pests and wood destroying pests, or organisms, or such other pests as may include those which infest households or other structures including railroad cars, ships, docks and airplanes, or the contents thereof.

Due to the fact that geographical and climatic conditions vary over the entire state, pest problems differ enormously in various areas. However, the following list represents those pests on which the most calls are received from the general public.

Termites are probably the most important from an economic standpoint. The State of California registered 240,926 termite inspection reports during 1962, only 26.6 percent of which disclosed no infestation of any kind. However, on the basis of calls received from the public by pest control operators, cockroach calls far exceed those for termites.

The following are the ten most important household insect pests which gave the homeowner, restaurateur, industrialist and food processing plant owner the most trouble in 1962, listed in order of their importance:

COCKROACHES
- Oriental cockroach (*Blatta orientalis*)
- German cockroach (*Blattella germanica*)
- Brown-banded cockroach (*Supella supellectilium*)
- American cockroach (*Periplaneta americana*) and other species

TERMITES
- Subterranean termites (*Reticulitermes* spp.)
- Drywood termites (*Kalotermes* spp.)
- A dampwood termite (*Zootermopsis angusticollis*)
- A powder-post termite (*Cryptotermes brevis*)

ANTS
- Argentine ant (*Iridomyrmex humilis*)
- Southern fire ant (*Solenopsis xyloni*)
- Pavement ant, Carpenter ants, Thief ant, Pharaoh ant, Harvester ants

SPIDERS
- Black widow spider (*Latrodectus mactans*)
- Wolf and garden spiders

STORAGE PESTS
- Granary weevil (*Sitophilus granarius*)
- Drugstore beetle (*Stegobium paniceum*)
- Saw-toothed grain beetle (*Oryzaephilus surinamensis*)
- Indian-meal moth (*Plodia interpunctella*)
- Mediterranean flour moth (*Anagasta kuhniella*)

CARPET BEETLES, MOTHS & SILVERFISH

EARWIGS AND CRICKETS

FLEAS & BROWN DOG TICK
- Cat flea (*Ctenocephalides felis*)
- Dog flea (*Ctenocephalides canis*)
- Brown dog tick (*Rhipicephalus sanguineus*)

BEES AND WASPS
- Honey bee (*Apis mellifera*)
- Wasps (*Polistes* spp.)
- A carpenter bee (*Xylocopa tabaniformis orpifex*)

SOWBUGS, PILLBUGS, SCORPIONS, CENTIPEDES, CLOVER MITES, FUNGUS GNATS & DARKLING BEETLES

Structural pests - Total - (Including loss by individuals due to damage to food, fiber and materials discarded)	$ 90,000,000
GRAND TOTAL - All Pests	$380,779,641

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